

# Spotlight on Japan's Competitiveness

## Part 1: Overall Evaluation of Japan's International Competitiveness

By Motohashi Kazuyuki

### Introduction

In the postwar years, the Japanese economy caught up with the United States and Europe at an astonishing speed. Japanese automobiles and electronic products spread worldwide, and in the 1980s, even *Made in America*, a Massachusetts Institute of Technology (MIT) report on U.S. industrial competitiveness, rated the practices of Japan's auto and semiconductor industries the best in the world.<sup>1</sup> In the late 1980s, the Japanese economy entered its longest postwar expansionary phase. This economic boom, later to be described as the "bubble" economy, ended abruptly in the early 1990s following the 1990 stock market crash and the subsequent tumble in land prices. In the wake of the collapse of the so-called bubble, the 1980s approbation of Japan's industrial competitiveness became the economic gloom of the 1990s. The annual economic growth rate fell from 4.1% of the 1980s to an average rate of 1.4% for the 1990s. These economic conditions led the 1990s to be dubbed "the lost decade." What would be the future of the Japanese economy? Was it all over for Japan? Yet this pessimism could also be reshaped to regard the same decade as a period of economic systemic reform in the broad sense, revisiting the main bank system, lifelong employment and other practices which had previously functioned so well.<sup>2</sup> Given the complementary nature of systems, the transition to new systems will inevitably take time. The poor economic performance of the Japanese economy over that period may not merit the gloom it seems to have inspired.

In this series, we will examine the structural causes affecting the long-term performance of the Japanese economy based to the greatest possible extent on objective data. The recent performance of the Japanese economy inevitably engenders pessimism over its

prospects, while this loss of confidence on the part of consumers and business managers is in turn impacting negatively on short-term macroeconomic trends. However, discussion of Japan's medium to long-term competitiveness requires a level-headed analysis of the various structural factors involved, including corporate innovation activities such as new product development and the creation of new businesses, as well as problems relating to the human resources underpinning innovation, and economic systems in the midst of growing international competition.

Part I, entitled "Overall Evaluation of Japan's International Competitiveness," begins by analyzing the factors behind the slump in overall indexes of international competitiveness epitomized by Japan's latest rankings in the *IMD World Competitiveness Yearbook*. We also examine productivity, the most important economic index in discussing industrial competitiveness, looking at changes in the capacity of the Japanese economy between the 1980s and 1990s. Part II will highlight Japan's manufacturing industry, considering industrial competitiveness from a trade perspective. We will examine the response of Japanese companies toward China and other parts of Asia, focusing particularly on the electronics industry, the competitiveness of which is said to be diminishing. Part III, the conclusion of the series, will move on to corporate innovation activities as the most critical factor in predicting economic performance over the medium to long term, examining the business environment for innovation, and considering Japan's medium to long-term economic growth prospects in that context.

### Japan's falling ranking in international competitiveness indexes

One useful way of understanding "competitiveness" is to consider the competitors. For example, "corporate competitiveness" focuses on the degree

of competitive advantage of a company in inter-corporate market competition. This is straightforward because of the clear-cut nature of the competitors. Harvard University's Michael Porter takes this framework for the analysis of corporate competitiveness a step further to analyze the competitiveness of nations.<sup>3</sup> He examines the competitive advantage of nations using four factors: 1) firm strategy, 2) structure and rivalry, and 3) demand conditions – in other words, the market conditions for the particular industry – and 4) factor conditions and related and supporting industries, which pertain to the environment in which the industry is located. MIT's Paul Krugman, on the other hand, is among those who reject the image of national competitiveness as a kind of trade war, in that unlike corporate competition, which is a battle for limited markets, international trade is often a plus-sum game which offers merits for both countries.<sup>4</sup>

The very nature of competitiveness is therefore subject to debate, but here we will regard it as a synthesis of the various structural factors affecting the medium to long-term economic performance of a nation. The International Institute for Management Development (IMD), a Swiss business school, gathers an enormous amount of data on national competitiveness from around the world as the basis for a quantitative analysis of overall competitiveness indexes. The IMD's analysis draws on the various economic indexes and an Executive Opinion Survey to rank national competitiveness in the form of the annual *World Competitiveness Yearbook*. The 2002 rankings published in April place Japan's competitiveness at 30th among 49 countries, a four-place drop from 26th position last year. Japan in fact held on to first place from 1989, the year the report was first launched, through to 1993, but that ranking has plunged since the late 1990s in particular and still remains low.

Table 1 Japan's rankings by area in the IMD World Competitiveness Yearbook

	1990	1995	2002
Overall ranking	1	4	30
Domestic economic performance	1	4	29
External economic performance	1	9	16
Role of government	2	27	31
Finance	3	6	33
Social infrastructure	—	28	28
Management practices	—	4	41
Science and technology	1	2	2
Labor market	2	6	41
No. of countries	33(*)	48	49

Note: (\*) These rankings reflect Japan's place among 23 developed countries, but it was decided that the rankings would not change even if 10 developing countries were included. The rankings for 1995 and 2002 include developing countries.

The IMD's competitiveness rankings are calculated from a synthesis of around 250 criteria based on various types of hard data (such as economic size, investment in technology development, compensation levels for workers and financial market size) and the Executive Opinion Survey, which targets the leaders of more than 3,000 businesses worldwide. In addition to the overall ranking, the IMD also provides rankings in the four areas of economic performance, government efficiency, business efficiency and infrastructure, as well as rankings in 19 detailed sub-categories. In 2002, Japan came in 29th among 49 countries in terms of economic performance (as compared to 16th last year), 31st for government efficiency (29th last year), 35th for business efficiency (30th last year) and 16th for infrastructure (19th last year). Economic performance in particular dragged the figures down, causing Japan's slump in the overall rankings.

While the IMD announces competitiveness rankings every year, slight changes have taken place in the particular areas examined and the countries covered. Because the ranked indexes have been heavily revamped a number of times, a perfect time series analysis is impossible, but Table 1 looks at changes in those categories with some extent of conceptual commonality between 1990 and 2002 in regard to Japan's rankings by area. Japan stood at fourth place in the overall ranking in 1995, which highlights the extent of the plunge since the late 1990s. In terms of causes, the slide in Japan's overall ranking is echoed by domestic economic performance, which is based on such factors as gross domestic product (GDP), unemployment rates and price levels. On the other hand, Japan's external economic performance, which is based on the balance of payments and trade statistics, has undergone a comparatively limited slide, still ranking 16th in 2002. Because such economic indicators are heavily influenced by cyclical factors in the macroeconomy, their use as indexes of competitiveness would seem slightly problematic. (Table 1)

Other areas of the IMD report are extremely significant in analyzing the

current status of Japan's competitiveness. The role of government is calculated on the basis of the Executive Opinion Survey to assess whether the transparency of government procurement, venture policy, immigration policy, regulations pertaining to financial institutions and other economic regulations and policies are contributing to national competitiveness. Japan's ranking had already dropped to 27th among 48 countries by 1995, which would seem to have been strongly influenced by concern over failures in macroeconomic policy as evidenced in the collapse of the bubble and the inappropriate handling of financial scandals. Japan was already scoring poorly in 1990 for transparency of government procurement and immigration policy.

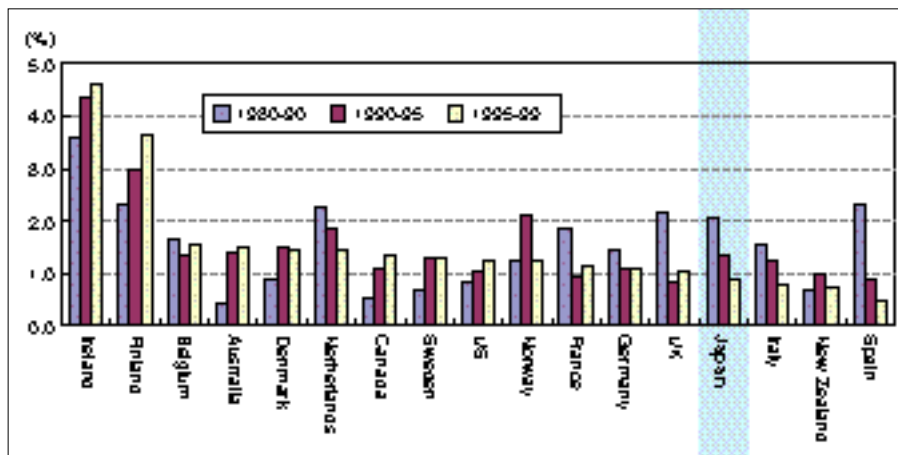
The finance index combines economic data on bank asset holdings, stock market trends and other factors, with the results of the Executive Opinion Survey, which includes evaluations of financial services and the stock market. Japan ranked sixth in 1995, falling heavily primarily in the late 1990s. The low ranking in 2002 reflects Japan's performance in regard to "rights and responsibilities of shareholders" (49th among 49 countries), while it also scored poorly in terms of "financial institutions' transparency" and "banking regulation." These assessments will have been influenced by the financial slump sparked by the collapse of Yamaichi Securities and Hokkaido Takushoku Bank in the fall of 1997.

Japan also saw its management practices ranking plummet from fourth in

1995 to 41st in 2002 as a result of Executive Opinion Survey assessments of "adaptability to market change," the functioning of "corporate boards," "entrepreneurship," "marketing," "ethical practices" and other related areas. As these areas are unlikely to have changed so dramatically between 1995 and 2002, there would seem to be a substantial bias caused by changes in the subjective perceptions of business leaders. At the same time, with the enormous changes in market competition conditions epitomized by the intensifying competition which has accompanied globalization and the advance of the information technology (IT) revolution, old management models are undeniably losing their potency. The failure to implement a dynamic response to these environmental changes seems to be eroding the credibility of Japanese businesses. The same goes for the labor market. Japan's ranking dropped steeply between 1995 and 2002, and yet it is difficult to imagine that the level of the same human resources fell so far so fast. The tumble in rankings was primarily influenced by a poor performance in macroeconomic indicators such as worker compensation and working hours. "Employee training" and the availability of "skilled labor," both key indexes in judging competitiveness, slipped only slightly to ninth and 12th respectively.

While rankings crashed almost across the board in the 1990s, science and technology was one area where Japan is still ranked second among 49 countries even in 2002. The index for this category is based primarily on statistical

Figure 1 TFP Growth Rates of OECD countries



Source: OECD

data related to science and technology, such as research and development (R&D) spending levels, the number of patents acquired, and the number of scientists. As part of a project conducted by the U.S. Council on Competitiveness, Michael Porter's group has developed a national innovation index for science and technology. While the evaluation looks at 1995, and is therefore a little old, it uses econometrics more rigorously than the IMD indexes.<sup>5</sup> According to this index too, Japan ranks third after the United States and Switzerland among 17 developed countries, and is forecast to seize first place in 2005. The index takes the number of patents acquired as the output of innovation activities and conducts a regression analysis using explanatory variables such as the number of researchers, research expenditure, and the strength of intellectual property rights protection, the results of which are used as the basis for indexing innovation capacity. As science and technology activities and innovation are key elements in determining long-term economic growth, this is a hopeful result in terms of Japan's industrial competitiveness. At the same time, it has also been noted that research results are not being linked to economic revitalization – in other words, limited efficiency in turning technology into products and business – and this aspect of corporate innovation capacity also needs to be built into the overall evaluation.

To bring together the above argument, is the IMD's placing of Japan at

30th among 49 countries reasonable? In terms of competitiveness, the impact of macroeconomic indexes (such as GDP, working hours and stock market indexes) which are easily affected by short-term economic fluctuations has resulted in a slight underestimation. The vaguely pessimistic view of the Japanese economy revealed in the Executive Opinion Survey has also had an effect. Consequently, the slip from first place in 1990 to 30th in 2002 is a little exaggerated. At the same time, we cannot afford to shrug off negative perceptions of the Japanese government and financial institutions. The same problems existed latently before the collapse of the bubble, but seem to have surfaced with a vengeance in response to the deterioration of the macroeconomy. In that context, it will be vital to seize the opportunity to push forward with a bold reform program which will strengthen Japan's future competitiveness. The issue of most serious concern in comparing the 1980s and 1990s rankings is management practices. With technological innovation, the advance of the IT revolution and economic globalization all contributing to increasingly intense international competition, management practices too need to be exposed to flexible reform. Japan's management model was once studied as among the world's best practices. The rapid changes to the corporate competition environment require an urgent reanalysis of those strengths of Japanese management which should be retained, as well as those points which no longer

make the grade in the new competition environment. While science and technology was the only area in which Japan scored highly, it should also be remembered that this is only in the sense of technology results such as patents acquired. Japan has been criticized for its inefficiency in terms of the innovation linking such results to new products and businesses. University-industry collaboration and venture companies have a critical role to play in the innovation process, a point to which we will return in detail in Part III.

### Trends in Industrial Competitiveness and Productivity

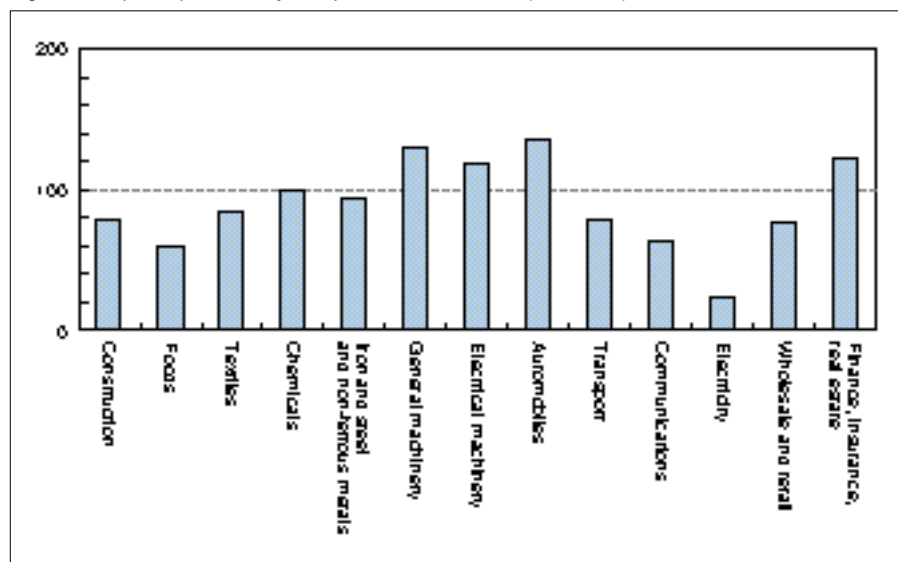
The most important economic indicator in the discussion of industrial competitiveness can be productivity. Productivity can be measured at corporate, industrial and national levels, and while competitiveness indicators based on trade statistics are limited to trade in goods, productivity can be applied to all industries, services included. Higher productivity in the industry of one country compared to others suggests superior production technology, which means that the industry in question can supply international markets with more attractive goods and services. Even Paul Krugman, who tends to be negative toward the concept of national competitiveness, has noted that productivity is close to what is generally thought of as competitiveness. *Made in America*, a famous U.S. industrial competitiveness study, also conducts its industrial analyses using the productivity-based concept of industrial performance (productive performance in the case of products). In this study, productivity statistics are combined with qualitative information on factors which do not emerge in such statistics, such as quality, the speed of technological innovation and ability to adapt strategically to technological changes, to produce an overall evaluation for industrial competitiveness.

Here we focus primarily on data for international comparisons of productivity to examine the current state of Japan's industrial competitiveness. Figure 1 compares the growth of total factor productivity (TFP) among Organization for Economic Coopera-

tion and Development (OECD) countries. Unlike labor productivity, which measures volume per unit of labor, TFP expresses the production volume per unit of the weighted average of labor and capital. Labor productivity can be boosted by introducing new production equipment and raising the capital equipment ratio, but TFP represents productivity where the growth in this ratio too is controlled, and is considered to simply indicate the degree of technological progress. Figure 1 ranks countries by their average rate of TFP growth between 1995 and 1999, bringing Japan in at 14th among 17 countries. In terms of long-term trends, production growth fell from 2.1% in the 1980s to 1.3% in the early 1990s and 0.9% in the late 1990s. Looking at other Group of Seven (G7) countries, Germany and Italy demonstrate the same slowing productivity growth rate, while countries like the United States and Canada have conversely seen their rates of productivity rise. The upward curve in productivity in the United States in the 1990s was due primarily to the economic structural changes caused by IT, but in the age of the IT revolution, Japan's productivity has fallen instead. (Figure 1)

In discussing industrial competitiveness, not only growth but also the level of productivity need to be examined (for example, how much higher the productivity of one industry is in Country A compared to Country B). For example, the postwar Japanese economy staged a lightning catch-up on the United States and Europe, and in the process of which it has been ascertained that Japan maintained high productivity growth. During the catch-up period, Japan in fact undoubtedly secured higher productivity growth than in the West, but that is not to say that Japanese industry was internationally competitive, as Japan's productivity level was actually still low at that time. Figure 2 compares Japan's TFP level by industry where the United States is 100. In major Japanese export industries such as automobiles and electrical machinery, the TFP level is over 100, which suggests a higher productivity level than the United States. However, that was in 1995, and as observed earlier, the annual average

Figure 2 Japan's productivity compared to U.S. levels (US = 100)



Source: White Paper on International Trade 2000, Ministry of Economy, Trade and Industry

rate of TFP growth in the late 1990s was lower in Japan than in the United States. It is therefore difficult to gauge the current level. (Figure 2)

In stark contrast to the continued comparatively high productivity demonstrated by Japanese manufacturing industry, and particularly the above kind of export industries, is the low productivity of the service industry. In the areas of transport and communications, Japan's productivity is approximately half that of the United States, around a third when it comes to electricity. Japan has higher productivity than the United States in finance, insurance and real estate, but this reflects a technical factor – namely, Japan's extremely high real estate prices – while the labor productivity in finance and insurance alone is around 20% lower than the United States. The inefficiency of the service sector is thought to arise from the lack of exposure to the kind of harsh international competition which the manufacturing industry must deal with. Most of these service areas are also regulated, which means that the regulatory system could be preventing inter-corporate competition, as well as the stimulation to innovation and higher productivity which competition can produce. The United States, on the other hand, engaged in sweeping regulatory reform of its infrastructure sectors – electricity, transport and communications – as of the late 1970s, estab-

lishing a competitive environment. Low productivity in infrastructure sectors pushes up costs for the companies using these services, and can even impede the competitiveness of other industries, manufacturing included. While Japan is finally advancing regulatory reform of the services sector, the issue of Japan's international competitiveness demands an accelerated program in this area.

#### Note

- 1 Dertouzos, M.L. et al (1989), *Made in America*, MIT Press, Cambridge MA
- 2 Aoki, M. (2002), "Nippon Saisei no Shinario (Path to Japanese Recovery)," in Keizai Kyoshitsu (Economics Classroom), *Nihon Keizai Shimbun*, 3 January 2002.
- 3 Porter, M.E. (1990), *The Competitive Advantage of Nations*, Free Press, New York
- 4 Krugman, P. (1996), *Pop Internationalism*, MIT Press, Cambridge MA
- 5 Porter, M.E. and Stern, S. (1999), "The New Challenge to America's Prosperity: Findings from the Innovation Index," Council on Competitiveness, Washington D.C.

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